

Requested Patent: JP1015979A

Title: MANUFACTURE OF SEMICONDUCTOR INTEGRATED CIRCUIT ;

Abstracted Patent: JP1015979 ;

Publication Date: 1989-01-19 ;

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Application Number: JP19870172174 19870710 ;

Priority Number(s): JP19870172174 19870710 ;

IPC Classification: H01L21/265; H01L21/90; H01L29/78 ;

Equivalents: ;

#### ABSTRACT:

**PURPOSE:** To enable restraining the damage of a silicon substrate caused by etching and ion-implanting, and the generation of crystal defect caused by heat treatment, by making a mask composed of a high temperature fluidized film flow in the horizontal direction and extend, and forming a source-drain region of high concentration by using the extended mask.

**CONSTITUTION:** Through a lithography process, a BPSG film 5 and a polycrystal silicon film 4 are subjected to patterning. On the side surface of a gate electrode 4A, an SiO<sub>2</sub> film 7 is formed by mixing O<sub>2</sub> gas in an atmosphere during a certain period of heat treatment. Since oxygen atom diffuses in the BPSG film 5A, an SiO<sub>2</sub> film with 50% thickness of the SiO<sub>2</sub> film on the side surface is formed also on the upper surface of the gate electrode 4A. As the result of the above heat treatment, the BPSG film 5A flows, and its sectional shape changes into a form regulated by the surface tension. A BPSG film 5B is formed and subjected to heat treatment at a temperature of 950 deg.C. By this heat treatment, the BPSG films 5A and 5B are made to flow, and fused into one. A contact hole 9 and a metal wiring 10 are formed to complete a semiconductor integrated circuit.